

Relations

Suggested grade level: 2, 3 or 4

Corresponding software: *Mathville Speedway*, *Relation Shapes* activity

Curriculum expectations addressed:

Algebra

- * Extend patterns involving geometric shapes and transformations such as flips and turns

Geometry:

- * Identify, compare and analyze 2-dimensional shapes according to two attributes

Communication:

- * Organize and consolidate mathematical thinking through communication
- * Communicate mathematical thinking coherently and clearly to peers and teachers

Prerequisites: Classifying activities and activities that explore flips, slides and turns with manipulatives and concrete objects

Materials required: Copies of the following blackline worksheet and pencils

Suggestions for use: Four sets of worksheets follow. The first is intended as a warm-up activity to familiarize students with the “A is to B as C is to ?” format of the other three worksheets.

This may be done as an individual or small group activity with groups of 2 or 3. A key part of this activity is that students should discuss their reasoning with the teacher or the rest of the group.

Encourage students to explain how the first two items are related and have them check that the second two items are related in the same way.

Variations and extensions: Challenge the students to create their own relationships worksheets. Try different themes (flips, turns, word themes, sports, science, etc.).

A two-person activity: Draw each answer on a card. Shuffle the deck. Player A draws a card (only Player A can see it). Player A must now help Player B guess what’s on the card by thinking of and drawing three shapes (or words) on a piece of paper. Player B looks at the three shapes and draws a fourth shape. If the fourth shape matches what’s on the card, the players switch roles, with Player B drawing the card; otherwise Player A must try again, drawing three more shapes, until Player B succeeds in guessing what’s on the card.

Relations - 1

Fill in the missing words.

1. **Quick** is to **slow** as **young** is to _____.
2. **Finger** is to **hand** as **toe** is to _____.
3. **Ford** is to **car** as _____ is to **running shoes**.
4. **No** is to **know** as **too** is to _____.
5. **Day** is to **night** as **winter** is to _____.
6. **Hand** is to **glove** as **foot** is to _____.
7. **Stick** is to **hockey** as _____ is to **baseball**.
8. **Lake** is to **pond** as _____ is to **stream**.
9. **French** is to **France** as _____ is to **Spain**.
10. **Two** is to **bicycle** as **four** is to _____.
11. **Ten** is to **five** as **six** is to _____.
12. **Watch** is to **time** as **thermometer** is to _____.
13. **Old** is to **new** as _____ is to _____.
14. **Cow** is to **calf** as _____ is to _____.
15. **Boat** is to **water** as _____ is to _____.




Relations - 1






There may be more than one correct answer. **EXPLAIN** your answer to your teacher and the other students.

1. Quick is to slow as young is to **old**.
2. Finger is to hand as toe is to **foot**.
3. Ford is to car as **Nike, Adidas, Puma, etc.** is to running shoes.
4. No is to know as too is to **two, to**.
5. Day is to night as winter is to **summer**.
6. Hand is to glove as foot is to **shoe, sock**.
7. Stick is to hockey as **bat** is to baseball.
8. Lake is to pond as **river** is to stream.
9. French is to France as **Spanish** is to Spain.
10. Two is to bicycle as four is to **car, wagon, etc.**
11. Ten is to five as six is to **three, one**.
12. Watch is to time as thermometer is to **temperature**.
13. Old is to new as **up** is to **down**. (**lots of possibilities**)
14. Cow is to calf as **cat** is to **kitten**. (**lots of possibilities**)
15. Boat is to water as **car** is to **road**. (**lots of possibilities**)




























































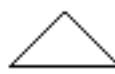











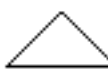








Relations - 2

Here's an example!

This shape  relates to this shape  in the same way that this shape  relates to which of these shapes?








































































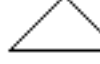








    

(Note: A red checkmark is placed under the black circle in the example.)

1.	 	 ?	    
2.	 	 ?	    
3.	 	 ?	    
4.	 	 ?	    
5.	 	 ?	    
6.	 	 ?	    
7.	 	 ?	    
8.	 	 ?	    
9.	 	 ?	    
10.	 	 ?	    




Relations - 2


EXPLAIN your answer to your teacher and the other students.






1.	 	 ?	    
2.	 	 ?	    
3.	 	 ?	    
4.	 	 ?	    
5.	 	 ?	    
6.	 	 ?	    
7.	 	 ?	    
8.	 	 ?	    
9.	 	 ?	    
10.	 	 ?	    

Relations - 3

Here's an example!

This shape  relates to this shape  in the same way that this shape  relates to which of these shapes?



1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									

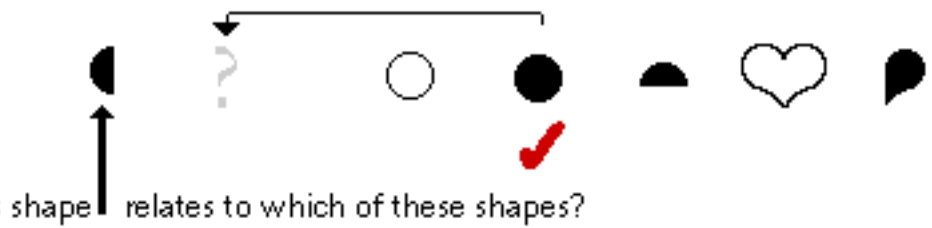
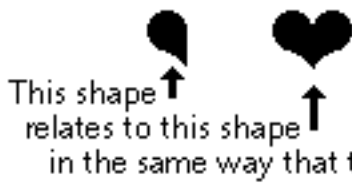
Relations - 3



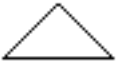













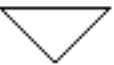
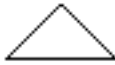



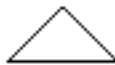


























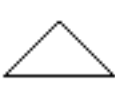



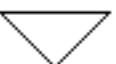



























EXPLAIN your answer to your teacher and the other students.

1.	M	Σ	T	?	I	W	H	M	H
2.	A	V	P	?	q	b	p	A	P
3.	T	H	L	?	F	L	J	Γ	Γ
4.	H	I	U	?	U	H	C	H	U
5.	V	Λ	T	?	H	V	T	V	H
6.	I	-	M	?	-	M	I	M	W
7.	L	Γ	P	?	b	p	q	p	p
8.	L	Γ	B	?	B	B	B	B	b
9.	E	E	△	?	▲	△	■	□	△
10.	!	.-	♥	?	♥	.-	♣	i	♣

Relations - 4

Here's an example!



1.				?					
2.				?					
3.				?					
4.				?					
5.				?					
6.				?					
7.				?					
8.				?					
9.				?					
10.				?					

Relations - 4

EXPLAIN your answer to your teacher and the other students.

1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			